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COMMUNITY ATTRIBUTES FROM EUROPEAN RIVER PLANTS AND THEIR RESPONSE TO PERTURBATION

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Twenty three river plant attributes were calculated for sites located throughout Europe including measures of richness, composition, cover of different life-forms and plant quality indices. A PCA of these attributes using only unimpaired sites explained 74% of the variability in the first two axes and opposed upland bryophyte-dominated communities to lowland and/or rich communities dominated by other life-forms. Superimposition of European regions, stream types and TWINSPAN floristic types revealed different patterns of spatial aggregation of sites over the PCA plane. Sites from each river type were subject to a NMDS to observe the separation between unimpaired and impaired sites. Several metrics were found to be significantly different, but only in three river types. A cluster analysis of unimpaired sites revealed three groups of sites having significantly different attribute composition. A MDA was used to assign impaired sites to these groups. The response of plant attributes to the gradient of perturbation for each attribute group was studied using box-and-whisker plots and NMDS.